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EXAMINER

FERNANDES, CHERYL M

ART UNIT PAPER NUMBER

2171

DATE MAILED: 08/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/032,915

Applicant(s)

PLASEK ET AL.

Examiner

Cheryl M Fernandes

Art Unit

2171

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code on page 3 of the instant specification. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Information Disclosure Statement

2. The listing of references in the specification on page 3 (lines 13 and 14) and page 4 (lines 17-19) is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Objections

3. Claim 15 is objected to because of the following informalities: Line 27 should read "one" instead of "on". Appropriate correction is required.
4. Applicant is advised that should claim 11 be found allowable, claim 13 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing

one claim to object to the other as being a substantial duplicate of the allowed claim.

See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 15 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a 'page fetch locator' and computing a 'next page address' for identifying a next sequential page (both on page 2 of the instant specification), does not reasonably provide enablement for a 'page fetch locator *signal*' resident in each leaf page and a 'page address fetch *message* sendable to an operating system'. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Referring to claim 1, the claim recites in step (c):

- that every record in a fetched next leaf page is searched. However, it is unclear if the fetched next leaf page that is searched is the same fetched next leaf searched by the selected search method in step (b) of the claim.

Claims 2-9 depending from claim 1 therefore inherit the aforementioned deficiency and are hereby rejected.

8. Referring to claims 10 and 12, the claims recite:

- in lines 1-8 the automatic selection of "a one of two search methods".
However, in lines 15-18 of claim 10 and 15-16 of claim 12, the claims negate themselves by reciting that the first *and* second methods are selected. It is unclear as to whether or not only *one* of the methods is automatically selected;
- in step(c) of the claims that records in a fetched next leaf page are searched.
However, it is unclear if the fetched next leaf page that is searched is the same fetched next leaf searched by the selected search method in step (b) of the claims.

Claims 11 and 13-14 depending from claims 10 and 12 therefore inherit the aforementioned deficiency and are hereby rejected.

9. Claim 15 recites the following limitations:

- "said fetched next page" in line 24;
- "said search fetched page routine" in line 26;

There is insufficient antecedent basis for these limitations in the claim.

Claims 16-24 depending from claim 15 therefore inherit the aforementioned deficiency

and are hereby rejected.

10. Referring to claim 20, it is unclear when said enable signaling means sends an enable signal.

Claims 21-23 depending from claim 20 therefore inherit the aforementioned deficiency and are hereby rejected.

11. Due to the number of 35 USC § 112 rejections, the examiner has provided a number of examples of the claim deficiencies in the above rejections, however, the list of rejections may not be all inclusive. Applicant should refer to these rejections as examples of deficiencies and should make all the necessary corrections to eliminate the 35 USC § 112 problems and place the claims in proper format.

Due to the vagueness and a lack of clear definition of the terminology and phrases used in the specification and claims, the claims have been treated on their merits as best understood by the examiner.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1, 2, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5,664,172 issued to Antoshenkov.

13. Referring to claim 1, Antoshenkov discloses a database search method (see Abstract; Field of Invention; Summary, col. 2, lines 64-66) for performing a B or B+ Tree

search ('B-tree index structure' used to locate database records, col. 4, lines 49-65; col. 5, lines 14-18) responsive to a user query (col. 4, lines 49-52; col. 5, lines 42-62) wherein said user query has a range for a first key value ('AGE between 21 and 65', col. 5, lines 50-51; Fig. 4A, element 441) and a definite second key value ('GENDER female', col. 5, lines 50-51; Fig. 4A, element 442) specified in said user query, said method comprising:

- a) automatically selecting a one of two search methods ('computerized query optimizer', col. 3, lines 6-8; 'switch mechanism', col. 17, lines 5-11) wherein a first method of said two search methods is a next sequential leaf fetch ("quick evaluation mode", col. 17, lines 5-11) and a second method is a trapeze fetch search method ("skip mode", col. 17, lines 5-11), said automatic selection being accomplished without any direct or indirect directing input from said user query (col. 23, line 31-col. 24, line 21)¹;
- b) executing said selected search method to fetch a next leaf page ('memory page', col. 1, lines 61-67) containing records ('evaluator' method used, col. 3, lines 17-23 and 26-29; 'Boolean evaluation', col. 7, lines 24-67; Fig. 3, elements 340-342);
- c) searching every record in a fetched next leaf page ('true or false condition' delivered by evaluator, Abstract; col. 3, lines 6-29²; col. 7, lines 57-67)

¹ Examiner respectfully asserts that the selection of one of the two modes of searching, namely the quick evaluation and skip modes is performed by a mechanism and is therefore performed automatically. The switching mechanism is not activated by user queries, but by maintaining a 'skip_count' and a 'limit_count' as a way of detecting sparse stretches of the index that need to be skipped.

² The evaluator uses selection criteria to deliver a logical true or false condition for each record in the database (see lines 6-11 and 17-19).

[even after a current value for said first and second keys may have become exhausted during the searching of every record]³ prior to completing said searching of every record ('Binding Phase' step, col. 6, line 55 – col. 7, line 5, Fig. 3, element 330⁴); and

- d) returning records from said fetched next leaf page (col. 3, lines 17-29⁵) and if said query is satisfied, ending said method ("empty" or "all-inclusive" query range, col. 6, line 62-67).

14. Referring to claim 2, Antoshenkov discloses examining a last record from said fetched next leaf page ('memory page', col. 1, lines 61-67) from a last previously performed step (c) and if said last record has a first key value in said first key value range and said definite key value, then selecting said first search method (refer to Fig. 14, where key 'k11' in row 1411 whose current key value is 'T' (true) and is evaluated in col. 1441; col. 16, lines 24-53), else selecting said second search method (refer to Fig. 14, where keys k3-k9 in rows 1404-1409 are skipped (not evaluated, see col. 1441) as indicated by current key value 'F' (false), col. 16, lines 45-53).

15. Referring to claim 9, Antoshenkov discloses that each selection of said second method is recorded and used as a basis for reporting a number of times sequential leaf pages have been skipped in satisfying a query ('limit_count', col. 23, line 57- col. 24, line 5).

³ Examiner respectfully asserts that the claims, as such, do not require that said first and second keys become exhausted during the searching of every record.

⁴ Referring to Fig. 3, the 'Binding to query' step is shown to take place before the 'executing query' step.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Antoshenkov, in view of US Patent Number 5,852,821 issued to Chen et al (hereafter Chen). Claims 3-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Antoshenkov, as applied to claim 1 above, and further in view of Chen.

18. Referring to claims 3, 6, 10, and 12, Antoshenkov discloses a database search method (see Abstract; Field of Invention; Summary, col. 2, lines 64-66) for performing a B or B+ Tree search ('B-tree index structure' used to locate database records, col. 4, lines 49-65; col. 5, lines 14-18) responsive to a user query (col. 4, lines 49-52; col. 5, lines 42-62) wherein said user query has a range for a first key value ('AGE between 21 and 65', col. 5, lines 50-51; Fig. 4A, element 441) and a definite second key value ('GENDER female', col. 5, lines 50-51; Fig. 4A, element 442) specified in said user query (col. 23, line 31-col. 24, line 21; see footnote 1), said method comprising:

- a) automatically selecting a one of two search methods ('computerized query optimizer', col. 3, lines 6-8; 'switch mechanism', col. 17, lines 5-11) wherein a first method of said two search methods is a next sequential leaf fetch ("quick evaluation mode", col. 17, lines 5-11) and a second method is a trapeze fetch

⁵ Records are selected in response to search criteria if the logical condition returned by the evaluator is

search method ("skip mode", col. 17, lines 5-11), said automatic selection being accomplished without any direct or indirect directing input from said user query wherein said selection method of step further comprises:

- 1) examining a last record from a first fetched leaf page ('memory page', col. 1, lines 61-67) if this step (1) is being performed a first time in response to said user query (col. 16, lines 24-53, Fig. 14, record key 'k11'); and if said last record has a first key value in said first key value range and said definite key value, then selecting said first search method (refer to Fig. 14, where key 'k11' in row 1411 whose current key value is 'T' (true) and is evaluated in col. 1441; col. 16, lines 24-53);
- b) executing said selected search method to fetch a next leaf page containing records ('evaluator' method used, col. 3, lines 17-23 and 26-29; 'Boolean evaluation', col. 7, lines 24-67; Fig. 3, elements 340-342);
- c) serially searching records (col. 2, lines 14-18; col. 16, lines 24-26, Fig. 14) in a fetched next leaf page ('true or false condition' delivered by evaluator, Abstract; col. 3, lines 6-29 (see footnote 2); col. 7, lines 57-67) ('Binding Phase' step, col. 6, line 55 – col. 7, line 5, Fig. 3, element 330 (see footnote 4)) [until a current value for said first and second keys may have become exhausted during the searching of every record] (see footnote 3);

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d) returning records from said fetched next leaf page (col. 3, lines 17-29 (see footnote 5)) and if said query is satisfied, ending said method ("empty" or "all-inclusive" query range, col. 6, line 62-67), else performing steps (a)-(d), iteratively until said query is satisfied ('proving entire tree to be true or false', col. 6, lines 62-67⁶; refer to claim 1 of Antoshenkov, in particular, col. 25, lines 61-65).

19. In addition, referring to the following claims, Antoshenkov discloses :

- disabling and re-enabling selectability of said second (trapeze fetch) search method (col. 7, lines 24-67; col. 16, lines 7-53; col. 17, lines 5-11) (claims 4 and 7);
- data indicating how many times said second search method is used in a query ('limit_count', col. 23, line 57- col. 24, line 5) (claims 5 and 8);
- that each selection of said second method is recorded and used as a basis for reporting a number of times sequential leaf pages have been skipped in satisfying a query ('limit_count', col. 23, line 57- col. 24, line 5) (claims 11 and 13);
- wherein each selection of said first method is used to reevaluate a turn-off-swinging value, and if said turn-off-swinging value reaches a high predetermined turn-off-swinging value level, altering step (a) so that only said first method is selected, unless and until said turn-off-swinging value reaches a low predetermined turn-off-swinging value, and in such event, reverting to said original form of step (a) (col. 23, line 31- col. 24, line 5) (claim 14);

⁶ Examiner asserts that in order to prove that an entire tree is true or false logical condition, the evaluation

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20. Referring to claims 3, 4, 5, 6, 7, 8, 10, and 12, Antoshenkov fails to disclose:

- that for each selection of the first method, changing a first value in a first operations record of selections made, and for each selection of a second method, changing a second value in a second operations record of selections made.

However, referring to claims 3, 4, 5, 6, 7, 8, 10, and 12, Chen discloses a dynamic adjustment of key (range) values in processing range comparisons for HNG index queries, wherein the system of Chen compares the initial key value against the stream of field values when scanning the HNG index, and decrements the key value accordingly (Abstract; col. 7, lines 48-60; col. 8, lines 19-64).

21. It would have been obvious to one of ordinary skill in the art at the time that the invention was made to include that for each selection of a HNG index retrieval method, changing a first value in a first operations record of selections made, and for each selection of a second method, changing a second value in a second operations record of selections made, as taught by Chen.

The ordinary skilled artisan would have been motivated to modify Antoshenkov per the above for the purpose of optimizing range comparisons by reducing the number of logical operations for a given comparison (col. 8, lines 21-22 and 41-43), thereby doubling the performance of the operations (col. 8, lines 63-64).

step must be preformed recursively for each tree node.

22. Claim 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Antoshenkov in view of US Patent Number 5,717,919 issued to Kodavalla et al (hereafter Kodavalla).

23. Referring to claim 15, Antoshenkov recites a search method program (see Abstract; Field of Invention; Summary, col. 2, lines 64-66) for performing a B or B+ Tree search ('B-tree index structure' used to locate database records, col. 4, lines 49-65; col. 5, lines 14-18) responsive to a user query wherein said user query has a range for a first key value ('AGE between 21 and 65', col. 5, lines 50-51; Fig. 4A, element 441) and a definite second key value is also specified in said user query ('GENDER female', col. 5, lines 50-51; Fig. 4A, element 442), said program comprising:

a get next leaf page search routine ('memory page', col. 1, lines 61-67) having:

- a comparison element for examining a last record on a leaf page (record k11, Fig. 14) to determine if it has a first key value in said range and a second key value equal to said definite second key value specified in said user query (col. 16, lines 24-53; 'evaluation of index keys', col. 15, lines 54-67);
- a decision making element for determining which of two search routines should be used in fetching a next leaf page ('computerized query optimizer', col. 3, lines 6-8; 'switch mechanism', col. 17, lines 5-11), said decision making element for generating a search using next sequential leaf page fetch ("quick evaluation mode", col. 17, lines 5-11) locator signal resident in each leaf page ('sorted rank vector pointers', col. 6, lines 42-47) if said first key value of said last record on a leaf page was in said range and said second key value of

- said last record on a leaf page was equal to said definite second key value (refer to Fig. 14, where key 'k11' in row 1411 whose current key value is 'T' (true) and is evaluated in col. 1441; col. 16, lines 24-53), else for generating a signal value indicating a trapeze fetch will be used to find a next leaf page for record searching (refer to Fig. 14, where keys k3-k9 in rows 1404-1409 are skipped (not evaluated, see col. 1441) as indicated by current key value 'F' (false), col. 16, lines 45-53); and
- a B Tree search routine for searching root and index ('B-tree index scan', col. 2, lines 5-25) and data pages ('memory page', col. 1, lines 61-67) for next sequential first key values in said range when said signal value indicates a trapeze fetch will be used (see Fig. 14, where records k3-k9 are skipped in looking for next sequential key values s0-s2; 'get-next-key request', col. 16, lines 21-44); and
 - a record searching of a fetched page routine for sequentially searching records within a said fetched next page and for providing records matching each of said sequentially searched records from within said fetched next page to a query response generator routine ('memory page', col. 1, lines 61-67), said search fetched page routine having a comparison routine for comparing first and second key values within each record to a current one of said first key values in said range and to said second key value (col. 16, lines 24-53).

24. In addition, referring to the following claims, Antoshenkov discloses :

- generating a report including at least a predetermined number of records sent for display and use by a user (col. 5, line 63 – col. 6, line 3) (claims 16 and 17);
- generating a report with data related to a number of times said B tree search routine is employed during said user query ('limit_count', col. 23, line 57- col. 24, line 5) (claim 18);

25. However, Antoshenkov fails to disclose a get next leaf page search routine having a fetch routine for generating a page address fetch message sendable to an operating system to fetch said next page.

26. Kodavalla discloses a fetch routine for generating a page address fetch message sendable to an operating system to fetch a next page ('Datatypes Manager', col. 11, lines 33-46)

27. It would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify Antoshenkov to include a fetch routine for generating a page address fetch message sendable to an operating system to fetch a next page, as taught by Kodavalla.

The ordinary skilled artisan would have been motivated to modify Antoshenkov per the above for the purpose of encapsulating functionality for treating an object as a single page chain, wherein this supports traversing multiple page chains for providing, in effect, the traversal of a single page chain (col. 11, lines 33-46).

28. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Antoshenkov in view of Kodavalla as applied to claim 15 above, and further in view of US Patent Number 6,374,232 issued to Dageville et al (hereafter Dageville).

29. Referring to claim 24, the combination of Antoshenkov/Kodavalla discloses all of the claimed subject matter above, but fails to disclose that the search fetched page routine searches all records in each said fetched leaf page and returns all records having said second key value, regardless; of whether a current first key value is found in said records.

However, Dageville discloses a search fetched page routine that searches all records in each fetched leaf page and returns all records having a second key value, regardless of whether a current first key value is found in said records (See Fig. 2A; Col. 12, lines 41-67).

It would have been obvious to one of ordinary skill in the art at the time that the invention was made to further modify the combination of Antoshenkov/Kodavalla to further include the search fetched page routine that searches all records in each fetched leaf page and returns all records having a second key value, regardless of whether a current first key value is found in said records, as taught by Dageville.

The ordinary skilled artisan would have been motivated to modify the combination of Antoshenkov/Kodavalla per the above for the purpose of partitioning an index into a plurality of sub-indexes or index partitions, thereby enabling the amount of data to be read in a block-order index scan to be reduced (col. 12, lines 41-43).

Allowable Subject Matter

30. Claims 19-23 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

31. Referring to claim 19, Antoshenkov (US Patent Number 5,664,172) teaches a 'limit_count' that is incremented every time a key after the current key is accessed and is found to satisfy the user query. Antoshenkov also teaches that each time that a key is skipped in the search, the limit_count is set to zero. The value of the limit_count is used to determine which search method to use (col. 23, line 31- col. 24, line 5). While the variance of the limit_count can be said to be the positive and negative swing value of the search program of claim 19, Antoshenkov does not teach "recording a positive swing value each time a selected leaf page resulting from the search is not a same leaf page as a leaf page that would be selected by a sequential leaf search, and recording a negative swing value each time a selected leaf page resulting from the search is a same leaf page as a leaf page that would be selected by a sequential leaf search". Therefore neither Antoshenkov alone, nor in combination with Kodavalla, teach or suggest all of the claim limitations as recited in claim 19.

32. Referring to claim 20, Antoshenkov teaches the disabling and enabling of the trapeze fetching method by a 'switch mechanism' (col. 17, lines 5-11), however, Antoshenkov does not specifically teach sending a disable signal if the B tree did not

skip any leaf pages when last performed. Therefore neither Antoshenkov alone, nor in combination with Chen, teach or suggest all of the claim limitations as recited in claim 20.

Conclusion

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cheryl M Fernandes whose telephone number is (703) 305-3917. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on (703) 308-1436. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

August 17, 2004
CMF


SAFET METJAHIC
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100